

# Automotive Headlamps with Improved Beam Chromaticity

## Abstract

Lenses for lamps can improve the quality of the light emitted through lens by interacting with the light bulb. Photoluminescent dyes as well as non-photoluminescent dyes may be incorporated into a polycarbonate lens in order to shift the chromaticity of the light source. Further, design features such as grooves or protrusions may be incorporated into the lens to allow light produced by the photoluminescent material to escape the lens and be added to the emitted beam to further shift the chromaticity. The emitted beam is of a legal color and intensity as defined per the SAE J578 and SAE J1383 standards. The lighting performance may also be improved in such manner as reducing discomfort glare, increasing brightness or producing a beam that enhances road visibility at night to the human eye.